

REMARKS

Claims 1, 3-5, 7-11, 16, 18, and 19 remain pending in the application. No claim is currently amended, cancelled, or added. Applicant respectfully requests for allowance of all pending claims.

Rejections under 35 U.S.C. §102/103

Claims 1, 3-5, 7, 8, and 16 are rejected under 35. U.S.C. 102(b) as being anticipated by, or in the alternative, under 35. U.S.C. 103(a) as obvious over U.S. Patent No. 5,893,702 to Conrad et al. (hereinafter referred to as "Conrad").

The amended independent claim 1, as shown for example in the embodiments illustrated in FIG. 6 of the application, is directed to a vacuum pumping arrangement comprising: a turbomolecular pumping mechanism (16) having a rotor, wherein the rotor comprises a rotor body (52) and rotor blades (58) extending radially outwards from the rotor body (52); and a molecular drag pumping mechanism (18) connected in series with the turbomolecular pumping mechanism (16), wherein a rotor (62) of the molecular drag pumping mechanism is affixed to the rotor blades (58) of the turbomolecular pumping mechanism (16); and wherein the rotor blades (58) of the turbomolecular pumping mechanism (16) are provided with an annular ring (60), disposed co-axially with the rotor body (52) and positioned between two ends of each of the rotor blades (58) in a radial direction, to which the rotor (62)

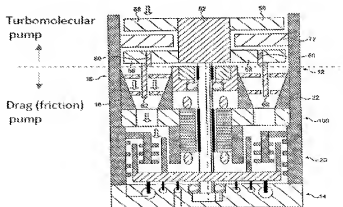


FIG. 6

of the molecular drag pumping mechanism (18) is fixed.

Conrad does not teach “a rotor of the molecular drag pumping mechanism is affixed to the rotor blades of the turbomolecular pumping mechanism” as the claimed invention. Referring to FIG. 6 of Conrad below, coaxial cylindrical elements 5 (comparable to the rotor of the molecular drag pumping mechanism of the claimed invention) is attached to a connection element 10, which is part of a gas friction pump instead of a turbomolecular pump 20. “The shaft 4, the coaxial cylindrical elements 5 and the connection element 10 form together a rotor unit of [a gas friction pump].” See, col. 3, lines 61-67.

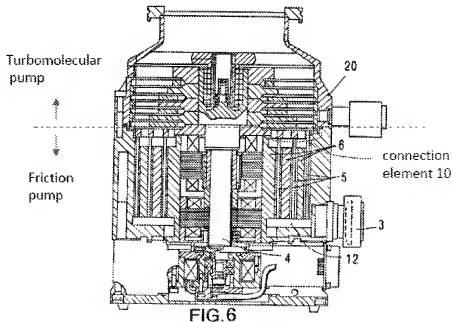


FIG. 6

The distinction on whether the connection element 10 is part of the gas friction pump or the turbomolecular pump is significant. Conrad acknowledges that conventional

gas friction pumps, because of their construction, cannot be modified so that their suction capacity substantially increases, without an adverse effect on their basic function. *See, col. 2, lines 13-19.* Thus, one of the objectives of Conrad is to provide a gas friction pump whose geometrical dimensions are comparable with the geometrical dimensions of conventional gas friction pumps. *See, col. 2, lines 24-27.* Placing the connection element 10 within the gas friction pump is the kind of conventional designs that cannot be easily modified. Conrad teaches creating openings 11 on the connection element 10 as shown in FIGs. 3 and 4 in order to increase the suction capacity of the gas friction pump. It would not have been obvious for a person skilled in the art at the time when the invention was made to modify Conrad by eliminating the connection element 10 and attaching the coaxial cylindrical elements 5 directly to the rotor blades of the turbomolecular pump 20, because it would significantly modify the conventional design and teach away from Conrad's objective.

In addition, it is noted that Conrad does not teach *"an annular ring, disposed coaxially with the rotor body and positioned between two ends of each of the rotor blades [of the turbomolecular pumping mechanism] in a radial direction,"* as the claimed invention. As discussed above, Conrad's connection element 10 is not comparable to the claimed rotor blades of the turbomolecular pumping mechanism. Neither does FIG. 6 nor the specification of Conrad show an annular ring disposed on the rotor blades of the turbomolecular pump 20.

As such, independent claim 1 is patentable over Conrad under 35 U.S.C. §102/103. Accordingly, claims 3-5, 7, 8, and 16 that depend from claim 1 and include all the limitations recited therein are also patentable over Conrad under 35 U.S.C. §102/103.

Rejections under 35 U.S.C. §103

Claims 9-11, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conrad in view of U.S. Patent No. 6,135,709 to Stones (hereinafter referred to as “Stones”), U.S. Patent No. 4,465,434 to Rourk (hereinafter referred to as “Rourk”), and U.S. Patent No. 5,230,924 to Schofield (hereinafter referred to as “Schofield”).

As discussed above, independent claim 1 is patentable over Conrad under 35 U.S.C. §102/103. Accordingly, claims 9-11, 18 and 19 that depend from claim 1 and include all the limitations recited therein are also patentable over Conrad in view of Stones, Rourk, and Schofield under section 103.

CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

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